OPERATING INSTRUCTION

sound

SOLID STATE AM-FM-FM MPX STEREO RECEIVER

MODEL R-700

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SOLID STATE AM FM MULTIPLEX STEREO RECEIVER

This model is designed for high fidelity reproduction of programs from both AM and FM monophonic or FM Multiplex radio broadcasts and also audio sources, stereo or monophonic from discs and tapes. Facilities are provided for recording the programs, when desired, on tape recorders. Instructions are given herein to achieve the maximum enjoyment in listening.

INSTALLATION

Loudspeaker Selection:

Matched loudspeakers should be used for the best in stereo reproduction. These are preferably of the same type made by a reliable manufacturer. The power handling capabilities are important; each must be designed for outputs of 22.5 watts of music power without distortion. Careful selection of the enclosures will assure the best performance.

Ventilation:

Since solid state circuitry is used throughout, the heating effects are low. However, the receiver should be kept away from direct sunlight or abnormal temperatures.

CONNECTIONS

Loudspeakers:

The amplifier output is designed to match the 8 ohm loudspeakers. The leads from the left and right speakers are connected to the R and L speaker pin jack on the rear panel.

Pin Jack Connectors:

These connectors are provided for the L and R channels for connections to the pin plugs as follows:

Inputs: MAG, XTAL from the phono cartridge, magnetic or crystal type in the player.
AUX from an external audio source such as the outputs from TV audio and tape recorder, etc.
TAPE MONITOR from the pre-amplifier of the tape recorder for monitoring the recording condition.

Output: TAPE OUT to the input of a tape recorder for recording.

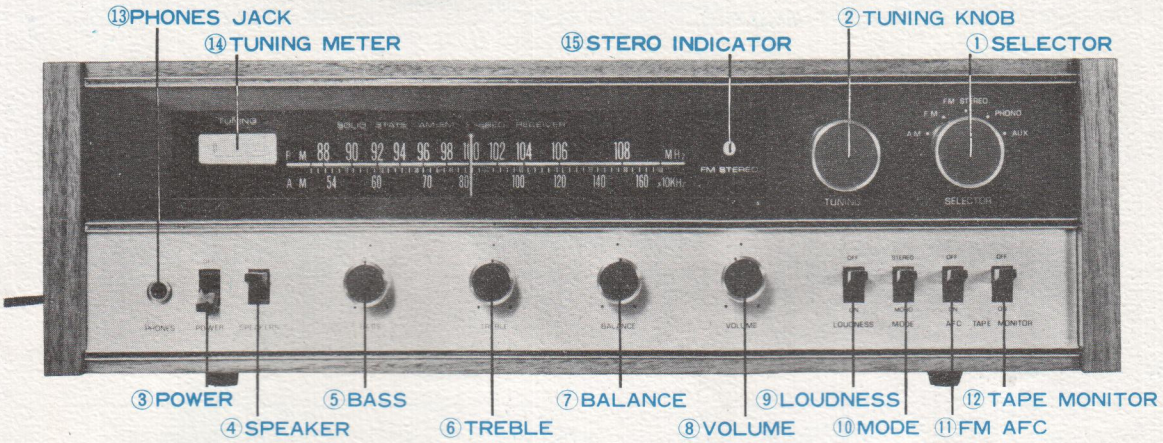
Antennas:

AM: For reception from local stations, the built-in loopstick will pick up signals. It may be necessary to set its axis properly by turning it around for the best conditions; this is because the loopstick has directional properties. Distant stations will require either the lead wire antenna about 15 feet (5 meters) long or the outdoor type with a length of at least 50 feet (15 meters), depending on the signal strength. In whichever case, connect the antenna leads to the ANT terminal on the rear panel. Be sure to use a lightning arrestor for safety when using the outdoor antenna.

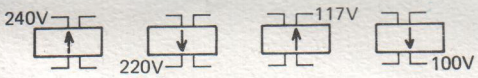
FM: The FM tuner is designed for a 300 ohm balanced input from antenna, like TV Antenna. Connect the feeder to the FM 300 ohm terminals.

AC Line Cord:

The receiver is designed for AC operation, 50 or 60 Hz. The operation voltage can be either 110V AC or 220V AC or 240V AC. On the back panel the line voltage selector switch has been installed. Before plugging the line cord to the mains, be sure to check that this switch is set to the voltage, as indi-



cated by arrow mark, corresponding to your mains supply.
(If the line voltage to operate the set needs be changed, pull out the plug of this switch and reset it so that arrow mark point to the indication of the desired voltage. See pictures below.)



Fuse:

Fuse is included for the AC line (not to the outlets). The fuse rating is 1.5A for 117V, 0.7A for 220V or 240V.

Protection Circuit:

The set incorporates the protection circuit to guard the driver and output transistors against overload. It automatically cuts out the input signal when there is overload due to excessive input or short-circuit. When cause of overload is removed, it is automatically self-restored, allowing the set to resume normal operation. When input is excessive, the set begins intermittent operation. This shows the protection circuit working. In such case, reduce the volume or other controls to the level where operation is normal. When either or both channels are dead, there may be shorts somewhere in the circuit. Check the circuit and remove the shorts, then the set may resume normal operation.

AC Outlet:

One outlet unswitched is provided for external equipment such as a phono player, tape recorder, etc.

Ground Terminal:

Ground terminal marked "G" is provided for connecting ground lead from the record player.

CONTROLS AND SWITCHES

The function of the various controls, switches and indicators will be described.

It is advisable to become familiar with their use in order to achieve the maximum performance from the receiver.

1. SELECTOR

Five position selector for selecting the programs.

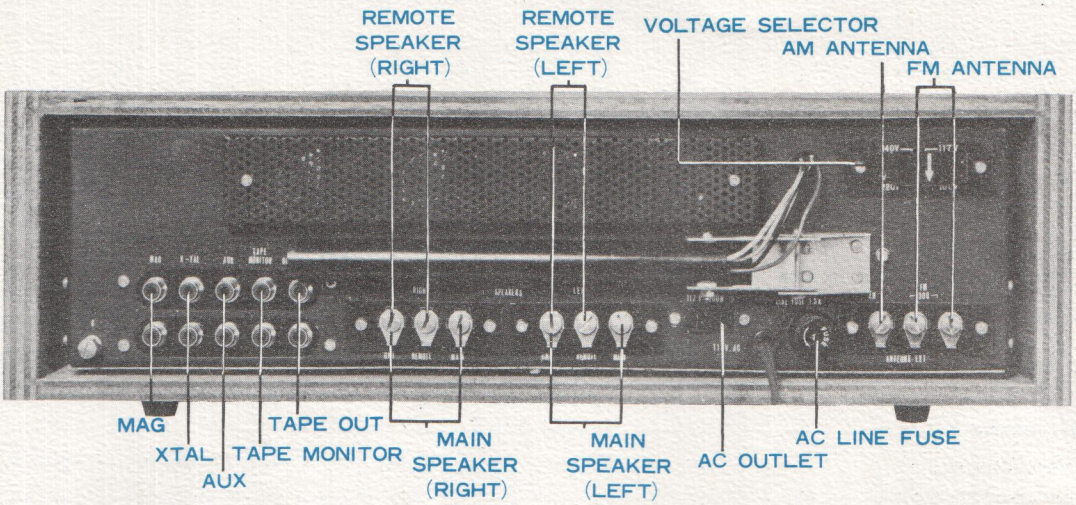
AM — For broadcasts from medium wave stations, 535 to 1605KHz.

FM — For monophonic FM broadcast from 88 to 108MHz.

FM STEREO — Multiplex Stereo programs are reproduced whend the STEREO indicator is lit.

PHONO — From a phono cartridge, magnetic or crystal type, whichever is connected at the input.

AUX — From an external audio source, such as audio amplifier, TV audio, tape preamplifier output, microphone and other preamplifier outputs etc.



2. TUNING KNOB

Rotation of this knob will enable the selection of the broadcast stations on AM, FM, FM STEREO.

3. POWER

For connecting AC power to the receiver. The dial scale appears illuminated when the power switch is turned on. The dial is blacked out when the power is off.

4. SPEAKER

This is a switch to operate either the Main or Remote speaker systems depending on the setting as indicated.

5. BASS

For the boost and cut of the low frequency.

6. TREBLE

For the boost and cut of the high frequency.

7. BALANCE

The relative outputs from each channel is controlled.

8. VOLUME

For simultaneous control of the outputs from both speakers. Clockwise rotation increases the level of volume and counterclockwise rotation decreases the level.

9. LOUDNESS

At low output levels, the reduction in the bass response is compensated by switching to ON.

10. MODE

For the selection of either monophonic or stereo program by this slide switch.

11. FM-AFC

When the FM station is being tuned in, this switch is set to ON. This provides for the drift-free and best possible reception automatically by the AFC action.

12. TAPE MONITOR

Normally set to OFF. Used at the ON position if you wish to monitor when recording the receiver programs on a tape recorder.

13. PHONES JACK

For stereophonic private headphone listening, simply plug in the headphone plug to the jack, which will convert speaker operation to headphone automatically.

14. TUNING METER

Correct tuning of the radio station is to be indicated by the maximum swing of this meter.

OPERATION

Before plugging the AC cord to the mains, check the input and loudspeaker connections to make sure that they are not loose or disconnected or shorted.

Set the controls as follows:

POWER switch to OFF at first.
BALANCE, BASS TREBLE to midpositions.
MODE selector normally to STEREO.
TAPE MONITOR switch to OFF normally.
SELECTOR to the desired program.

Connect the AC cord to the mains and set the POWER switch to ON, and gradually increase the VOLUME to the desired level.

AM Broadcasts:

Set the SELECTOR to AM and the VOLUME about 1/3 rotation.

Rotate the TUNING knob for station selection and set it where maximum clear sound is obtained. Adjust the other contorls as required.

FM Broadcasts:

A. Monophonic:

Set the SELECTOR to FM and the FM-AFC switch to OFF at first.

Rotate the TUNING knob for station selection, to the point where maximum clear sound is obtained.

Set the FM-AFC swtich to ON for drift-free reception.

B. Stereo:

If the FM STEREO indicator lamp lights at the FM setting of SELECTOR, turn the SELECTOR to FM STEREO. Adjust the BALANCE control for the most pleasant listening condition.

Playing Disc Record:

A. Stereo

Set the SELECTOR to PHONO, and the MODE to STEREO. Adjust the VOLUME and other controls as required.

B. Monophonic

If the cartridge used in the player is monophonic, lead from player can be connected to either L or R input connector. Set the MODE to MONO position. If the disc is mono while using stereo cartridge, set the MODE to MONO also, then input signal is reproduced from both speakers.

Playback from Tape Recorder:

Connect the recorder output to the TAPE MONITOR input and set the TAPE MONITOR switch to ON, then you can listen to the playback music from the recorder.

NOTE: Additional music source (preamplifier output stage) also can be connected to the AUX input in which case the SELECTOR is set to AUX, and TAPE MONITOR switch set to OFF.

Recording to Tape Recorder:

Connect TAPE OUT to the input of the recorder. Set the SELECTOR to the desired program such as AM, FM or PHONO that is to be recorded. Set the TAPE MONITOR switch to OFF and then the program being recorded can be listened to simultaneously with recording.

NOTE: If the tape deck has separate heads for recording and playback, connect the output from recorder preamplifier to the TAPE MONITOR connector, and set the controls on the recorder system as required and then set the TAPE MONITOR switch to ON. In this way, it is possible to listen, through the loudspeaker, to the recorded program from the recorder playback head. Adjust the VOLUME and other controls according to the recording condition.

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SPECIFICATIONS:

FM Tuner Section:

Tuning Range:	88 to 108 MHz
Sensitivity:	2 uV(30 dB S/N)
Image Ratio:	Over 50 dB
Selectivity:	±120 KHz (– 3 dB)
S/N Ratio:	Over 50 dB
MPX Separation:	Over 30 dB (at 1 KHz)
Antenna:	300 ohms balanced input

AM Tuner Section:

Tuning Range:	535 to 1605 KHz
Sensitivity:	200 uV/M (20 dB S/N)
Image Ratio:	Over 30 dB
Selectivity:	±10 KHz (–20 dB)
S/N Ratio:	Over 40 dB
Antenna:	Built-in ferrite loopstick

Amplifier Section:

Output Power:	45 watts total music power (at 8 ohms(IHF))
	16 watts RMS each channel (at 8 ohms)
Distortion:	0.5% (at 15 watts output level)
Frequency Response:	20 to 35,000 Hz
Power Bandwidth:	20 to 30,000 Hz (–3 dB, 0.5% distortion)
Input Sensitivity:	MAG 3mV; XTAL 250 mV; AUX 200 mV; TAPE 200 mV.
Channel Separation:	Over 40 dB (MAG); Over 50 dB (AUX)
Tone Control:	BASS 50 Hz ±10 dB; TREBLE 10 KHz ±12 dB
Loudness:	50 Hz +12 dB; 10 KHz +4 dB
S/N Ratio:	60 dB (MAG); 70 dB (AUX)
Operation Voltage:	117V, 220V, 240V. AC.
Physical Size:	430 W x 320 D x 130 H (m/m) (17" x 12-1/2" x 5-1/8").

(Printed In Japan)